WYOMING

Landscape Conservation Initiative

Conserving world-class wildlife resources
Facilitating responsible development
www.wlci.gov

The Wyoming Landscape Conservation Initiative (WLCI) was announced in February 2007 as a long-term, science-based effort to assess, conserve and enhance fish and wildlife habitats while facilitating responsible development through local collaboration and partnerships. The concept for the WLCI began in the spring of 2006 as Federal and State fish and wildlife managers discussed the need for a landscape-scale approach to ensure healthy wildlife populations in areas with proposed energy development. The strategic, science-based approach of the WLCI formed a template for landscape conservation that was drafted into an 11-step landscape conservation implementation framework that provides guidance to other landscape-scale initiatives.

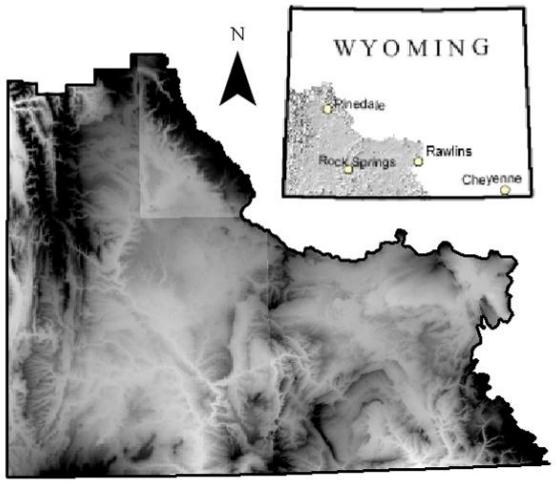
Wyoming Front Aspen Treatment designed to address conifer encroachment.

The collaborative effort represented by the WLCI is unique as it provides a means to address multiple concerns at a scale that covers all activities on the landscape, incorporates multiple needs in project implementation, and can leverage resources that might not be available for single agency projects. The partnership formally includes the Bureau of Land Management, U.S. Geological Survey, U.S. Fish and Wildlife Service, U.S. Forest Service, Wyoming Department of Agriculture, Wyoming Game and Fish Department, six County Commissions, and eight Conservation Districts. Other organizations cooperate with the WLCI and provide support as needed, including the National Park Service, Natural Resources Conservation Service, Bureau of Reclamation, Wyoming Department of Environmental Quality, Wyoming State Land Board, and Jonah Interagency Office. Partnerships are forming with industry and conservation groups. The WLCI has developed an agreement with the Wildlife Heritage Foundation of Wyoming to hold and administer private contributions. Below is information describing implementation of each of the 11 landscape conservation steps.

Logos of the WLCI partners.

1. Identify programmatic goals

Southwest Wyoming is identified as the landscape of interest where program implementation needs to occur due to the intense interest in energy development and other changes across the landscape. The WLCI program encompasses all land ownerships in Wyoming west of the Continental Divide and south of Teton County, and includes the Great Divide Basin.



Map showing the boundaries of the WLCI area.

Sagebrush, mountain shrub, aspen, riparian, and aquatic communities are the focus of work within this area. The WLCI has developed six goals that support and conform to the overall WLCI mission to implement a long-term, science-based effort to conserve and enhance fish and wildlife habitats, while facilitating responsible development through local collaboration and partnerships:

Goal 1: Manage, conserve, restore, or enhance the sagebrush, mountain shrub, aspen, riparian, and aquatic focus communities to ensure sustainability of fish and wildlife populations in the WLCI area.

Goal 2: Support opportunities for sustainable agriculture.

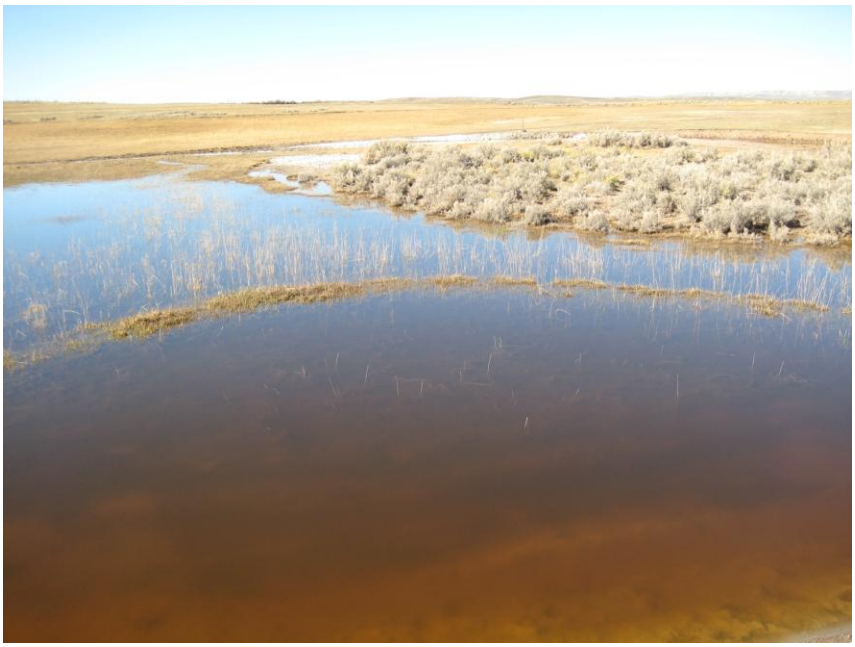
Goal 3: Improve the understanding of ecological processes across southwest Wyoming.

Goal 4: Synthesize information and facilitate communication to inform and encourage responsible development and sustain healthy landscapes.

Goal 5: Ensure effective relationships exist among partners, stakeholders, and the public through internal and external partnerships.

Goal 6: Provide mechanisms to ensure effective data and information exchange.

Additional information about the WLCI approach, including objectives and strategies, can be found in the strategic plan and operation plan, available on the WLCI Web site, www.wlci.gov.



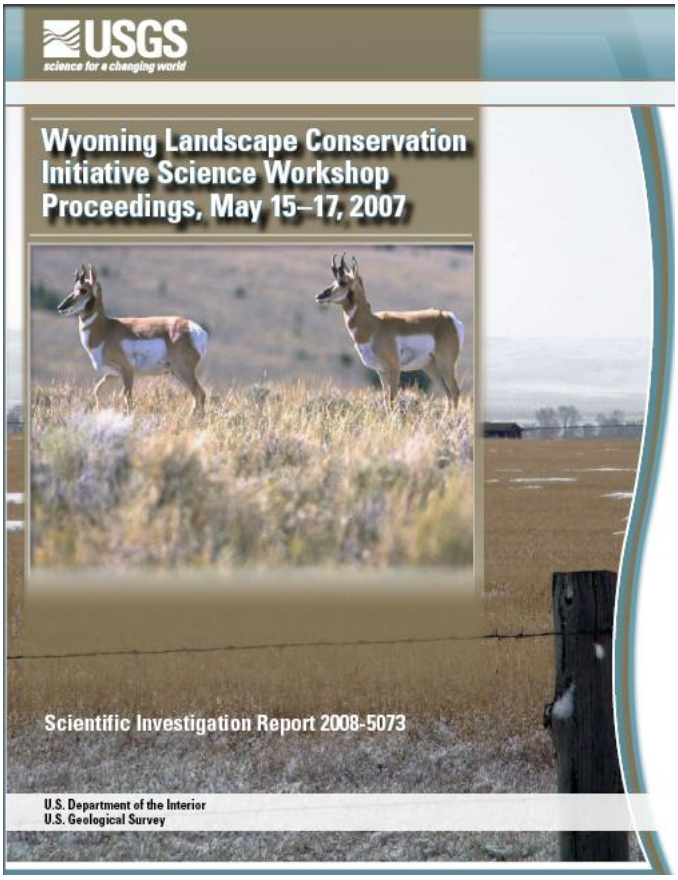
New wetland area to benefit trumpeter swan and other wildlife.

2. Assess Scientific Needs

A WLCI science workshop was held in May 2007 to discuss the research and management needs for the program. The U.S. Geological Survey, with partner input, drafted a WLCI Science Plan based on the outcomes of the workshop. Main topics discussed at the workshop and that have been further developed in the Science Plan include:

(1) Identify the key drivers of change;
(2) Identify the condition and distribution of key wildlife species, habitat, and species' habitat requirements;
(3) Evaluate wildlife and livestock responses to development;
(4) Identify the most effective and needed restoration, reclamation, and mitigation activities, as well as locations where conservation benefits may be maximized;
(5) Develop an integrated inventory and monitoring strategy; and
(6) Develop a data clearinghouse and information management framework.

Proceedings of the workshop are available on request.



Cover of the 2007 WLCI Science Workshop Proceedings.

3. Conduct ecoregional assessments

The USGS conducted the Wyoming Basins Ecoregional Assessment to analyze the multi-state area that includes southwest Wyoming. This assessment looks at and beyond southwest Wyoming to examine the status of species, effects of various human activities in the ecoregion, and what types of management may be appropriate to address potential risks. The ecoregional assessment focuses on habitats within the sagebrush ecosystem, but also includes non-sagebrush plant communities used by species of conservation concern to meet part of their life-cycle requirements. Below are the key outcomes of the Wyoming Basins Ecoregional Assessment:

- Quantification and description of the amount and distribution of landcover types in the assessment area;
- A draft list of species of conservation concern (including both vascular plants and vertebrates) and reasons for identification, including justification for inclusion or exclusion of species;
- Digitized maps of geographic ranges of species of concern within the assessment area, for those species deemed suitable for regional assessment;
- Classification of sensitivity to human disturbance for the species identified as suitable for regional assessment;
- A description of the dominant threats to habitats and populations of these species;
- Hypothesized effects of dominant threats, in the form of predictive models, for 10 example species;

- Description of methods and preliminary results for field sampling conducted during 2005 and 2006; and
- Specific direction and examples for management application of results of this assessment.

4. Identify priority management issues

Based on the outcomes of assessments and initial input from those involved with the WLCI on the ground, the three initial priorities for project work are fragmented habitats, invasive species, and water quality and quantity. Essentially all the identified problems can be categorized in these three priority issues. The WLCI is working with partners and stakeholders to determine appropriate actions for addressing these priority management issues.

Greg Reser, BLM, explains the importance of the Wyoming Front Aspen Treatment during a tour of the project.

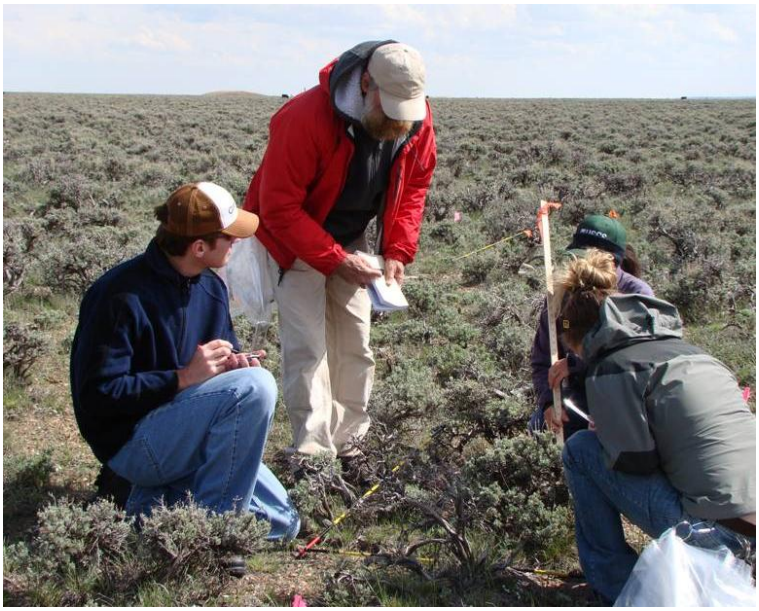
5. Identify focal areas for conservation or restoration

Initial focal areas for current projects are those areas not targeted for development where enhancement or conservation projects can maintain or improve ecological function. The WLCI has formed four Local Project Development Teams to assist in identification of priority areas on the ground. Teams will work at the local level to cooperatively identify resource needs and develop strategies to meet landscape level issues within the WLCI. They will consider the WLCI mission, goals, objectives, and priority issues as they apply their knowledge and information gathered through scientific research. Each Local Project Development Team includes local biologists, range managers, conservation districts, landowners, county commissioners, industry representatives and multiple other interested parties. Existing information from partner priorities will also be used in development of focal areas.

Mary Thoman, with the Sweetwater County Conservation District and WLCI Executive Committee presents information at the October Local Project Development Team workshop in Lyman.

6. Conduct assessments of focal areas

The USGS has assembled a comprehensive assessment that compiles and analyzes all available existing data for the WLCI area to determine current conditions. To date, the USGS and other WLCI partners have acquired 113 datasets. An important part of the assessment includes developing methods for using spatial images to monitor changing conditions and to map key habitat types, crucial wildlife-use areas, potential development areas, and on-the-ground habitat treatments. Assessment work in 2009 will include acquiring and standardizing additional data and using that information to guide ongoing and future monitoring and research. Assessment information will be used to update Wyoming's list of Species of Greatest Conservation Need and identify species most likely to be affected by development.



USGS researchers take measurements at a plot in summer 2008.

In the 2008 field season, the USGS initiated research on wildlife responses to energy development. Studies involve sage-grouse, songbirds, pygmy rabbits, and small mammals. Work included developing and designing research, collecting pilot data, and conducting initial analyses. The information may help clarify which issues are most problematic for wildlife in areas with energy development. Results will be used to refine research objectives and methods for the 2009 field season.

7. Select project sites and potential restoration/conservation actions

The WLCI uses a set of ranking criteria to help gage the conservation value and feasibility of proposed actions. The criteria link back to the program goals, key management issues, and local knowledge. These criteria include various considerations, such as whether work occurs within the Wyoming Game and Fish Department's priority areas, how the project addresses threats and risks, how the project fits into the landscape, and the extent that partners support the project. These criteria are accessible through the program Web site at www.wlci.gov.

Blacklining the Red Canyon/Elk Mountain burn in fall 2007.

8. Develop monitoring and research strategies and protocols

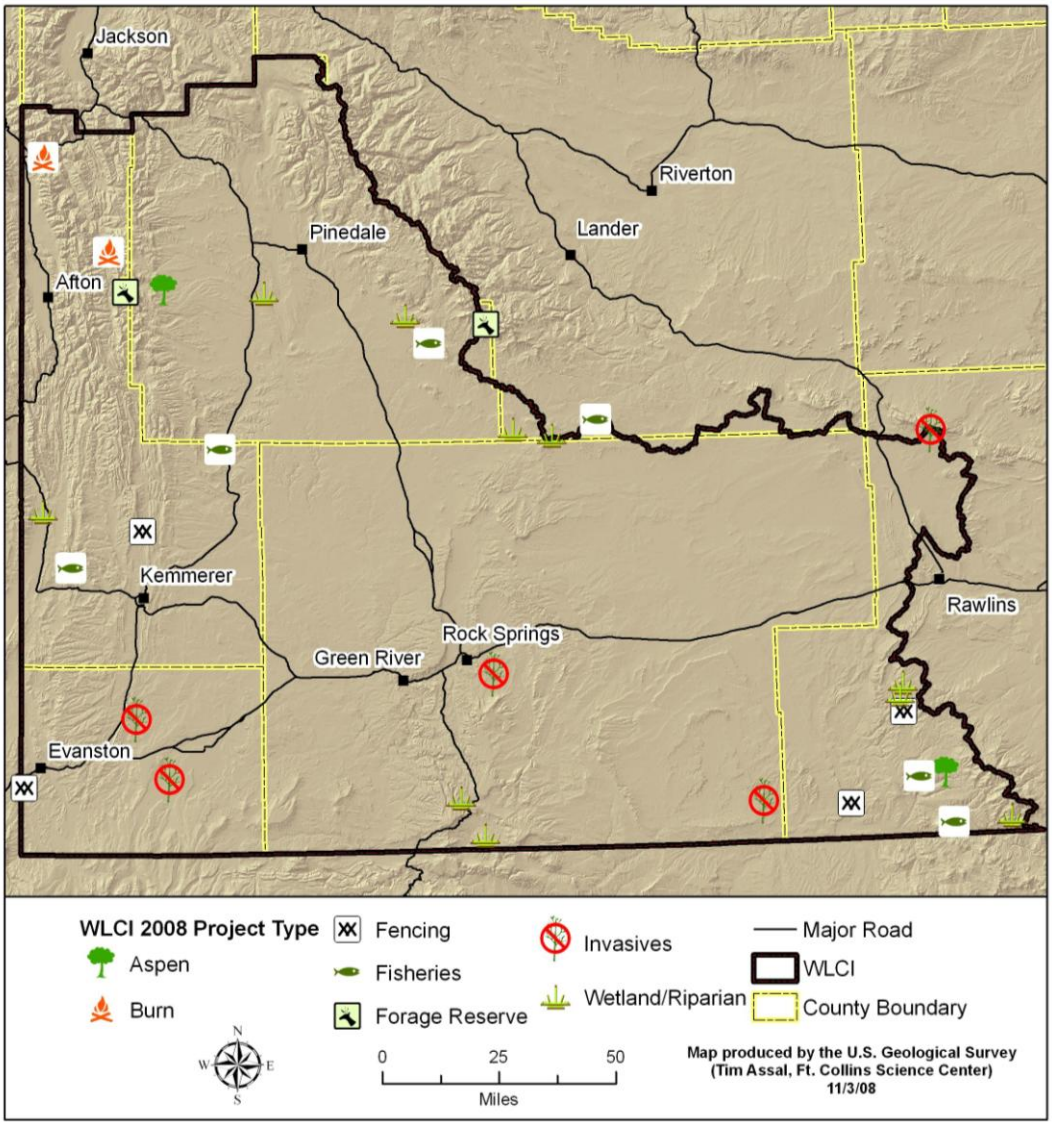
The WLCI uses various types of monitoring to determine the success of conservation work. The current approach to monitoring is designed to determine if program goals and management objectives are met at the individual site level and to consider the cumulative effects of all management actions at the landscape level. Implementation and effectiveness monitoring is conducted on individual projects by project proponents and landowners. The USGS is developing approaches to monitor long-term changes occurring to southwest Wyoming's soils, water, habitats, and wildlife related to human disturbances and habitat treatments. Monitoring will target priority habitats and wildlife-use areas. Due to the extent of the southwest Wyoming landscape, the USGS is developing techniques to monitor landscape changes through spatial image interpretation and appropriate ground truthing. The USGS also has developed an online data catalog to archive and share data from various WLCI participants. In 2009, the USGS and

other WLCI participants will assess the initial monitoring efforts and make revisions to monitoring and conservation projects as needed. The WLCI Monitoring Team is an interagency group that facilitates information exchange so successes, monitoring results and findings can be shared. This team coordinates with other initiatives involved in monitoring within the WLCI area to maximize efficiency, minimize duplication of effort, and seek for improved data quality and consistency. The Monitoring Team is developing plans to provide additional guidance to future monitoring work.

Overview of a new section of fencing along the Grizzly Wildlife Habitat Management Area.

9. Implement restoration or conservation actions

WLCI funding and coordination provided support for 29 on-the-ground projects in fiscal year 2008. Both the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (FWS) provided WLCI project funding. Projects also garnered support from other groups, who contributed more than $1.5 million in funding and in-kind support. Treatments funded through the BLM and FWS helped create or protect 400 acres of wetlands/riparian areas, restore 10 miles of stream, enhance or conserve 1,900 acres of uplands, treat weeds on 4,500 acres, and improve effectiveness of 70,000 acres of forage reserves. Work included an additional 20 miles of fencing to protect key habitats. Conservation work completed benefits multiple species, including sage-grouse, trumpeter swans, cutthroat trout, various warm water fish, various migratory birds, and big game species. The project map below also is available through the WLCI Web site at www.wlci.gov.



Map showing projects implemented in 2008. An interactive map is at www.wlci.gov.

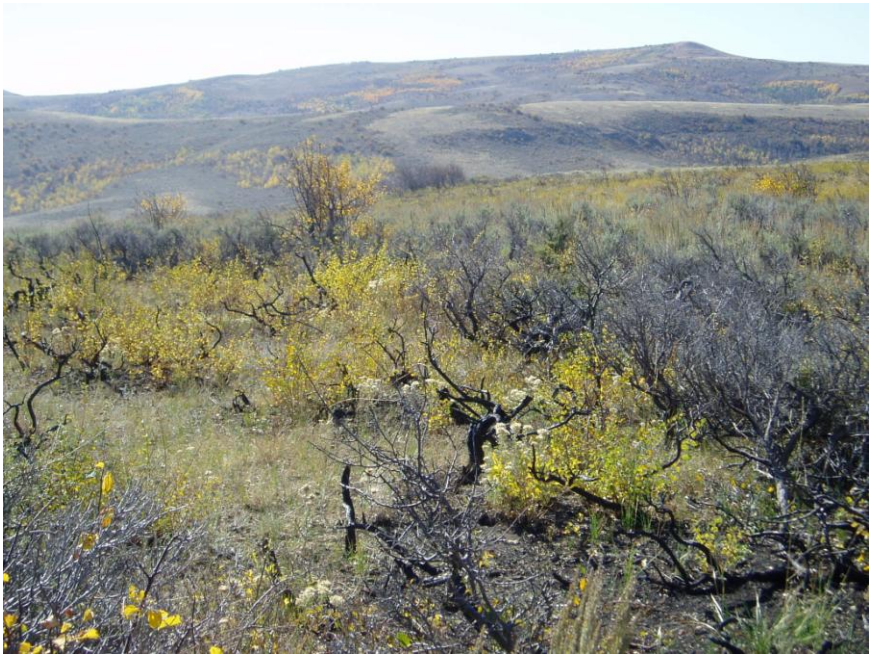
10. Implement site-specific monitoring

The WLCI projects include site-specific monitoring that will be used for adaptive management. The WLCI Monitoring Team is exploring the best approach to create consistency among agency monitoring protocols that will lead to improved comparisons. The USGS houses data about the WLCI area and uploads information about specific conservation projects and scientific research. Efforts are underway to integrate and make available monitoring information from a variety of resources, including private landowners, non-governmental organizations, and industry.

11. Effectiveness of actions at landscape or regional scale

Implementation of site-specific conservation and restoration actions have a local effect on species and habitats, but over time the results of these individual actions can have a large-scale effect on a broader landscape. The USGS has developed an approach to assess changes to the landscape over time by taking a stratified sample of habitat conditions. Conditions were

recorded in 2008 and will be collected each year. Additionally, some site-specific data will help improve the understanding of changes occurring at the landscape and regional scales and can be used to apply adaptive management to land management.



Charred sage brush and vegetation growth one year after the Red Canyon/Elk Mountain burn.